

Sub B1 cont.

a medium access control sub-layer;
upper layers of said medium access control sub-layer; and
a lower layer of said medium access control sub-layer,
wherein said medium access control sub-layer is configured to perform self-basic functions in response to basic function execution requests or functions associated with said upper layers or lower layer in response to requests therefrom,

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wherein said basic functions include at least one of a random access control information transfer function, a control information transfer function, a user information transfer function, framing/deframing functions, segmentation/reassembly functions, functions of dividing a frame of a specific one of said upper layers into channels of said lower layer and vice versa, a cyclic redundancy check function, a function of detecting an error of a medium access control sub-layer frame, and a rate adaptation function of adjusting a number of bits suitably for a radio frame, and

wherein said associated functions include at least one of a synchronization information control function, a system information control function, lower channel activation/deactivation functions, quality monitoring and reporting functions of, for maintenance of traffic channel quality, supporting power control, triggering a handover or reporting a channel condition upon traffic channel allocation, and a multi-bearer sequencing function of sequencing a multi-code.

2. (Amended) A communication system which has a plurality of mobile terminals and a base station, each of said mobile terminals and/or said base station, comprising:

a medium access control sub-layer;

upper layers of said medium access control sub-layer; and

a lower layer of said medium access control sub-layer,

wherein said medium access control sub-layer is configured to perform self-basic functions in response to basic function execution requests or functions associated with said upper layers or said lower layer in response to requests therefrom, and

wherein said basic functions include:

a random access control information transfer function,

a control information transfer function,

a user information transfer function,

framing/deframing functions,

segmentation/reassembly functions,

functions of dividing a frame of a specific one of said upper layers into channels of said lower layer and vice versa,

a cyclic redundancy check function,

a function of detecting an error of a medium access control sub-layer frame, and

a rate adaptation function of adjusting a number of bits suitably for a radio frame.

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3. (Amended) A communication system which has a plurality of mobile terminals and a base station, each of said mobile terminals and/or said base station, comprising:

- a medium access control sub-layer;
- upper layers of said medium access control sub-layer; and
- a lower layer of said medium access control sub-layer,

wherein said medium access control sub-layer is configured to perform self-basic functions in response to basic function execution requests or functions associated with said upper layers or said lower layer in response to requests therefrom, and

wherein said associated functions include:

- a synchronization information control function;
- a system information control function,
- lower channel activation/deactivation functions,
- quality monitoring and reporting functions of, for maintenance of traffic channel quality, supporting power control, triggering a handover or reporting a channel condition upon traffic channel allocation, and
- a multi-bearer sequencing function of sequencing a multi-code.

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5. (Amended) A communication system which has a plurality of mobile terminals and a base station, each of said mobile terminals and/or said base station, comprising:

a medium access control sub-layer;

upper layers of said medium access control sub-layer; and

a lower layer of said medium access control sub-layer,

wherein said medium access control sub-layer is configured to perform self-basic functions in response to basic function execution requests or functions associated with said upper layers or said lower layer in response to requests therefrom,

wherein said medium access control sub-layer includes a common control channel group and a dedicated control channel group which have a logical type of channels, and

wherein said common control channel group includes:

a synchronization channel for transferring time information for system time and base information for identification of said base station;

a broadcasting control channel for broadcasting access parameter information for access to said base station by a corresponding one of said mobile terminals, adjacent cell information indicative of radio frequency information of an adjacent cell, and available frequency information; and

a common control channel for setting a stand alone dedicated control channel between said corresponding mobile terminal and said base station.

7. (Amended) A communication system which has a plurality of mobile terminals and a base station, each of said mobile terminals and/or said base station, comprising:

a medium access control sub-layer;

upper layers of said medium access control sub-layer; and

a lower layer of said medium access control sub-layer,

wherein said medium access control sub-layer is configured to perform self-basic functions in response to basic function execution requests or functions associated with said upper layers or said lower layer in response to requests therefrom,

wherein said medium access control sub-layer includes a common control channel group and a dedicated control channel group which have a logical type of channels, and

wherein said dedicated control channel group includes:

a stand alone dedicated control channel formed between a corresponding one of said mobile terminals and said base station for transferring terminal association setup information and call setup information;

an associated control channel formed between said corresponding mobile terminal and said base station for transferring power control information and handover information; and

a traffic channel formed between said corresponding mobile terminal and said base station for transferring actual data.

8. (Amended) A communication system which has a plurality of mobile terminals and a base station, each of said mobile terminals and/or said base station, comprising:

a medium access control sub-layer;

upper layers of said medium access control sub-layer; and

a lower layer of said medium access control sub-layer,

wherein said medium access control sub-layer is configured to perform self-basic functions in response to basic function execution requests or functions associated with said upper layers or said lower layer in response to requests therefrom,

wherein said medium access control sub-layer includes:

first channel control means for transferring information for synchronization between an originating end and a terminating end, setting a stand alone dedicated control channel between said originating end and said terminating end and performing a cell setting operation between said originating end and said terminating end using the set control channel; and

second channel control means for providing a connection-oriented point-to-point service to an upper layer of said first channel control means and monitoring a quality of a radio link formed between said originating end and said terminating end.

SUB 15' > 14. (Amended) A method of processing signals using medium access control sub-layers in a communications system which has a plurality of mobile terminals and a base station, said medium access control sub-layers being respectively provided in said mobile terminals and base station, said method comprising:

performing, in each of said medium access control sub-layers, self-basic functions or functions associated with upper layers or a lower layer of said mobile terminals and/or said base station, said performing step being performed if signal processing operations of a corresponding one of said mobile terminals, of said base station, or between said corresponding mobile terminal and said base station are requested; and

performing a synchronization information of system information broadcasting control operation between said corresponding mobile terminal and said base station, said step of performing said broadcasting control operating including:

sending time information, system information and paging information from said base station to said corresponding mobile terminal if said broadcasting control operation between said corresponding mobile terminal and said base station is requested; and

receiving said time information, system information and paging information from said base station and transferring a synchronization request message or system information update requested message to said lower layer of said corresponding mobile terminal.

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15. (Amended) A method of processing signals using medium access control sub-layers in a communications system which has a plurality of mobile terminals and a base station, said medium access control sub-layers being respectively provided in said mobile terminals and base station, said method comprising:

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performing, in each of said medium access control sub-layers, self-basic functions or functions associated with upper layers or a lower layer of said mobile terminals and/or said base station, said performing step being performed if signal processing operations of a corresponding one of said mobile terminals, of said base station, or between said corresponding mobile terminal and said base station are requested; and

performing a random access control operation between said corresponding mobile terminal and said base station, said step of performing said random access control operation including:

sending a radio resource request message from said corresponding mobile terminal to said base station if said random access control operation between said corresponding mobile terminal and said base station is requested;

sending a radio resource request acknowledge message from said base station to said corresponding mobile terminal;

sending a radio resource response message from said base station to said ~~corresponding mobile terminal~~; and

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transferring a radio resource response reception message to a specific one of said upper layers of said corresponding mobile terminal.

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16. (Amended) A method of processing signals using medium access control sub-layers in a communications system which has a plurality of mobile terminals and a base station, said medium access control sub-layers being respectively provided in said mobile terminals and base station, said method comprising:

performing, in each of said medium access control sub-layers, self-basic functions or functions associated with upper layers or a lower layer of said mobile terminals and/or said base station, said performing step being performed if signal processing operations of a corresponding one of said mobile terminals, of said base station, or between said corresponding mobile terminal and said base station are requested; and

performing a lower channel activation or deactivation control operation of said corresponding mobile terminal or base station, said step of performing said lower channel activation or deactivation control operation including:

transferring a communication path activation or deactivation request message from a specific one of said upper layers of said corresponding mobile terminal or base station to said lower layer of said corresponding mobile terminal or base station if said lower channel

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activation or deactivation control operation of said corresponding mobile terminal or base station is requested;

allowing said lower layer to activate or deactivate a communication path in response to said communication path activation or deactivation request message from said specific upper layer; and

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allowing said lower layer to transfer the activated or deactivated result to said specific upper layer.

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17. (Amended) A method of processing signals using medium access control sub-layers in a communications system which has a plurality of mobile terminals and a base station, said medium access control sub-layers being respectively provided in said mobile terminals and base station, said method comprising:

performing, in each of said medium access control sub-layers, self-basic functions or functions associated with upper layers or a lower layer of said mobile terminals and/or said base station, said performing step being performed if signal processing operations of a corresponding one of said mobile terminals, of said base station, or between said corresponding mobile terminal and said base station are requested; and

performing a cell condition or channel condition reporting operation of said corresponding mobile terminal, said step of performing said cell condition or channel condition reporting operation including:

sending a cell condition or channel condition measurement request message from said base station to said corresponding mobile terminal if said cell condition or channel condition reporting operation of said corresponding mobile terminal is requested;

transferring a cell condition or channel condition measurement command to said lower layer of said corresponding mobile terminal in response to said cell condition or channel condition measurement request message from said base station;

allowing said lower layer of said corresponding mobile terminal to measure a cell condition of said corresponding mobile terminal in response to said cell condition or channel condition measurement command; and

sending a measured result of said cell condition or channel condition from said lower layer of said corresponding mobile terminal to said base station.

18. (Amended) A method of processing signals using medium access control sub-layers in a communications system which has a plurality of mobile terminals and a base station, said medium access control sub-layers being respectively provided in said mobile terminals and base station, said method comprising:

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~~performing, in each of said medium access control sub-layers, self-basic functions or functions associated with upper layers or a lower layer of said mobile terminals and/or said base station, said performing step being performed if signal processing operations of a corresponding one of said mobile terminals, of said base station, or between said corresponding mobile terminal and said base station are requested; and~~

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~~performing a control information/user information request operation of said corresponding mobile terminal or base station, said step of performing said control information/user information request operating including:~~

~~sending a control information/user information request message from a specific one of said upper layers of said corresponding mobile terminal or base station to said base station or corresponding mobile terminal if control information and user information are requested by said specific upper layer of said corresponding mobile terminal or base station.~~

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19. (Amended) A method of processing signals using medium access control sub-layers in a communications system which has a plurality of mobile terminals and a base station, said medium access control sub-layers being respectively provided in said mobile terminals and base station, said method comprising:

~~performing, in each of said medium access control sub-layers, self-basic functions or functions associated with upper layers or a lower layer of said mobile terminals and/or said~~

base station, said performing step being performed if signal processing operations of a corresponding one of said mobile terminals, of said base station, or between said corresponding mobile terminal and said base station are requested; and

performing a cipher control operation of said corresponding mobile terminal or base station, said step of performing a cipher control operation including:

del. transferring a cipher request message from a specific one of said upper layers of said corresponding mobile terminal or base station to said lower layer of said corresponding mobile terminal or base station if said cipher control operation of said corresponding mobile terminal or base station is requested;

allowing said lower layer to perform a cipher operation in response to said cipher request message from said specific upper layer; and

transferring a result of said cipher operation from said lower layer to said specific upper layer.

20. (Amended) A method of processing signals using medium access control sub-layers in a communications system which has a plurality of mobile terminals and a base station, said medium access control sub-layers being respectively provided in said mobile terminals and base station, said method comprising:

performing, in each of said medium access control sub-layers, self-basic functions or functions associated with upper layers or a lower layer of said mobile terminals and/or said base station, said performing step being performed if signal processing operations of a corresponding one of said mobile terminals, of said base station, or between said corresponding mobile terminal and said base station are requested; and

performing a handover control operation of said corresponding mobile terminal or base station, said step of performing said handover control operation including:

transferring a handover command from a specific one of said upper layers of said corresponding mobile terminal or base station to said lower layer of said corresponding mobile terminal or base station if a handover operation of said corresponding mobile terminal or base station is requested;

allowing said lower layer to perform said handover operation in response to said handover command from said specific upper layer; and

transferring a result of said handover operation from said lower layer to said specific upper layer.

21. (Amended) A method of processing signals using medium access control sub-layers in a communications system which has a plurality of mobile terminals and a base station, said medium access control sub-layers being respectively provided in said mobile terminals and base station, said method comprising:

performing, in each of said medium access control sub-layers, self-basic functions or functions associated with upper layers or a lower layer of said mobile terminals and/or said base station, said performing step being performed if signal processing operations of a corresponding one of said mobile terminals, of said base station, or between said corresponding mobile terminal and said base station are requested; and

performing a communication path modification control operation between said corresponding mobile terminal and said base station, said step of performing said communication path modification control operation including:

transferring a communication path modification request message from a specific one of said upper layers of said corresponding mobile terminal or base station to said lower layer of said corresponding mobile terminal or base station if said communication path modification control operation between said corresponding mobile terminal and said base station is requested;

allowing said lower layer to modify a communication path in response to said communication path modification request message from said specific upper layer; and

transferring a modified result from said lower layer to said specific upper layer.

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23. (Amended) A method of processing signals using medium access control sub-layers in a communications system which has a plurality of mobile terminals and a base station, said medium access control sub-layers being respectively provided in said mobile terminals and base station, said method comprising:

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performing, in each of said medium access control sub-layers, self-basic functions or functions associated with upper layers or a lower layer of said mobile terminals and/or said base station, said performing step being performed if signal processing operations of a corresponding one of said mobile terminals, of said base station, or between said corresponding mobile terminal and said base station are requested,

wherein each of said medium access control sub-layers is adapted to determine formats of data frames according to types of messages to be sent, and

wherein each of said medium access control sub-layers includes:

a forward access channel associated with a channel request acknowledge message and channel response message which are sent from said base station to said corresponding mobile terminal; and

a reverse access channel associated with a channel request message which is sent from said corresponding mobile terminal to said base station.